IN THE UNITED STATES DISTRICT COURT FOR THE

NORTHERN DISTRICT OF OKLAHOMA

W. A. DREW EDMONDSON, in his capacity as ATTORNEY GENERAL OF THE STATE OF OKLAHOMA and OKLAHOMA SECRETARY OF THE ENVIRONMENT C. MILES TOLBERT, in his capacity as the TRUSTEE FOR NATURAL RESOURCES FOR THE STATE OF OKLAHOMA,	)
Plaintiff,	)
vs.	) 4:05-CV-00329-TCK-SAJ
TYSON FOODS, INC., et al,	)
Defendants.	)

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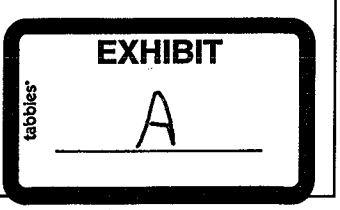
THE VIDEOTAPED DEPOSITION OF JAY CHURCHILL, produced as a witness on behalf of the Plaintiff in the above styled and numbered cause, taken on the 5th day of February, 2009, in the City of Tulsa, County of Tulsa, State of Oklahoma, before me, Lisa A. Steinmeyer, a Certified Shorthand Reporter, duly certified under and by virtue of the laws of the State of Oklahoma.



A Yes, around that time, yes.
Q Just as a general overview, what are your duties and responsibilities as a project manager?
A All aspects of -- I mean, I'll set up programs, invoicing to clients, making sure we have the correct manpower resources available for working on a project, communications with clients, communication with regulatory agencies, communications with team members. 09:09AM
Q Okay. When you say you set up programs, what does that mean? 09:09AM
A Projects for doing investigation or remediation.
Q Okay. What about field activities; do you supervise field activities? 09:09AM
A Yes.
Q Okay, and just as a percentage-wise, how much of that, those types of field activities are your duties or what you do on a daily basis?
A It's changed over the years a little bit, but I would say now perhaps on the order of 10 to 25 percent. 09:10AM
Q Okay.
A 10 percent perhaps.
Q Was there a time when you did more of the 09:10AM

field activities work?
A Yes, absolutely.
Q Okay, and when would that have been?
A '86 to, oh, you know, mid '90s.
Q Okay. You've been retained by the defendants to provide exert opinion testimony in this case, have you not? 09:10AM
A Correct.
Q When were you retained?
A I can't give you the exact dates. I'm going to guess it was early 2006. 09:10AM
Q Okay, and who first contacted you about becoming involved in this case?
A The original contact was not to me.
Q Okay. Somebody contacted you about becoming involved in this case? 09:11AM
A Yes.
Q And who was that?
A It would have been Jason Haelzle from CRA.
Q Okay, and when was that? 09:11AM
A You know, first part of 2006, first quarter, first half.
Q And you said Jason Haelzle?
A Yes.
Q Who is Jason Haelzle? 09:11AM

A To an FTP site, no, I don't.
Q Okay. Would anyone at CRA, maybe an administrative assistant or secretary, have done that?
A I don't know. I don't recall us having an FTP site for this project. 09:38AM
Q Okay. What about just in general as shared -- like a shared website?
A I mean, we would have our portal.
Q Okay. Have you submitted all the materials from that portal? 09:38AM
A Things aren't retained in our portal. Our transfer folder, I suppose, is the correct word.
Q What kinds of things would have been in this portal? 09:38AM
A If I was working on a report, I would have the, you know, word processor, who is formatting anything, put it on the portal, put it in the transfer folder.
Q So like drafts of your report? 09:39AM
A Work in progress, something like that.
Q Okay. Anything else?
A No.
Q All right. In the environmental investigation context, what are standard operating procedures or 09:39AM

SOPs?

A SOPs and -- an SOP would be a document in the form of a directive that would outline the procedures -- would typically outline the equipment, the procedures, the types of locations, you know, for conducting an activity. 09:40AM

Q Is that it?

A Yes.

Q Okay. You testified for the defendants in this case as part of the preliminary injunction hearing, did you not? 09:40AM

A Correct.

Q Do you recall testifying that you prepared sampling analysis plans?

A Yes. 09:40AM

Q Is there a difference between a sampling analysis plan and an SOP?

A They would be similar in the content; they would be very similar.

Q Okay. You say very similar. Are there any differences? 09:40AM

A I think, you know, the primary difference might be in, I think, a sampling analysis plan might be more -- well, I suppose it could fall either way. They would be very, very similar. I think primary 09:41AM

differences might be an SOP might be more of a form-type of document that might lay the steps but might not have, you know, an introduction, and a sampling analysis plan might have a little more background to the project and things like that. 09:41AM

Q Okay, but would a sampling analysis plan contain, for instance, procedures to be followed in a field investigation?

A Yes.

Q Okay. So basically you're saying that an SOP is more detailed? 09:41AM

A No, I wouldn't say it's more detailed.

Q I guess I'm not understanding the distinction.

A I think the format, you know, might be different. I would think of a sampling analysis plan, I think I just mentioned this, might have a little more background to the project and would identify, you know, how you are going to, you know, collect samples and, you know, the types of equipment you're going to use and all the things necessary to get good, you know, reliable samples, and I think an SOP more might be something that's more -- more of a format thing, more of a set of, you know, numbered instructions. 09:42AM

Q Okay. Okay. So those distinctions being 09:42AM

whatever they are aren't -- have you ever actually drafted an SOP?

A Not an SOP per se.

Q Okay.

A I have drafted procedures for conducting, you know, activities -- 09:43AM

Q Okay.

A -- that I wouldn't necessarily call it -- I wouldn't use the terminology SOP.

Q Okay. You ever collected a poultry waste or litter sample? 09:43AM

A No.

Q You ever collected any animal waste or litter sample?

A Animal waste, yes. 09:43AM

Q What kind?

A Cow manure.

Q What project?

A It was in Wisconsin.

Q In Wisconsin, and what type of project was it? 09:44AM

A I think it was in CNMP development.

Q Say that again.

A We were developing comprehensive nutrient management plans.

Q For cattle operations? 09:44AM

A The one I'm thinking of was a cattle operation, correct.
Q Okay. Who was your client?
A NRCS.
Q What was the purpose of collecting the cow manure samples? 09:44AM
A To get an indication of the nutrient content of the manure.
Q Was that sampling done pursuant to an SOP?
A I believe so, yes. 09:45AM
Q Would CRA have retained that SOP?
A As I recall, in that situation I believe the samples were collected in accordance with the Wisconsin NRCS document. I don't recall the name offhand. 09:45AM
Q Would CRA have retained that document?
A I would think so, yes.
Q Okay. Did you do any soil sampling in connection with this Wisconsin cattle site?
A No. 09:46AM
Q Did you have any supervisory duties in connection with that Wisconsin site?
A No.
Q So what was your -- in what capacity were you acting on that site? 09:46AM

A Part of the data collection, review of field -- of production operations.
Q You said that you didn't collect any soil samples in connection with that site. Did anyone at CRA collect soil samples -- 09:46AM
A No.
Q -- collect soil samples with regard to that site?
A No.
Q Have you ever overseen or supervised the sampling of animal waste or litter? 09:47AM
A Do you mind asking the question again?
Q Yeah. Have you ever overseen or supervised the sampling of animal waste or litter outside of this project? 09:47AM
A No.
Q Have you ever taken a spring sample?
A I've not taken one, no. I've seen others take one.
Q Have you seen others take a spring sample outside of this project? 09:47AM
A I don't know if you call it a spring or not. I would call it a seep.
Q And where was that?
A Doepke-Holliday Superfund site. 09:48AM

Q Who took the seep sample?
A Someone, another CRA employee.
Q Okay, and was that pursuant to an SOP?
A Yes, it was.
Q And would CRA retain that SOP? 09:48AM
A Yes, yes.
Q Okay. Have you ever taken a residential well sample?
A Yes.
Q Outside of this project? 09:48AM
A Yes.
Q And when was that?
A 1985.
Q What site was that?
A I don't recall the name of the site. It was a 09:49AM home in Ontario.
Q What was the purpose for taking the -- this residential well sample?
A I don't recall; I don't recall. It was a long time ago. 09:49AM
Q Okay, and was that done pursuant to an SOP?
A I don't recall.
Q Okay. Have you ever conducted environmental sampling concerning non-point source runoff?
A No. 09:50AM

any defendant has evaluated any of the analytical data?

A I don't know.

Q I'm going to hand you Exhibit 1. Can you identify this document for the Record? 09:58AM

A Yes. This is my CV.

Q Okay, and is this CV current?

A Yes.

Q All right. Turning to Page 4 under nature and extent of contamination investigations, first you 09:58AM have listed a former PCB capacitor manufacturing plant. Is that one of the sites that we discussed earlier?

A Yes.

Q Okay, and what was that again; what was the 09:59AM name of that site?

A Former P. R. Mallory plant in Crawfordsville, Indiana.

Q Okay, and what is IDEM?

A Indiana Department of Environmental 09:59AM Management.

Q When was this investigation conducted?

A Mid to late '80s through to the early 1990s.

Q And who was your client?

A That would be Kraft Foods. 10:00AM

Q What was your role in this program?
A Can you be a little more specific?
Q Yeah. What were your duties and responsibilities in this field investigation?
A I did a lot of sampling. 10:00AM
Q Okay. Anything else?
A In this investigation I did a lot of sampling work, yes. As remediation proceeded, I did a lot of construction oversight.
Q Okay, but I'm just talking about the field investigation. 10:01AM
A Sure.
Q You said you did a lot of sampling. Did you do soil sampling?
A Yes. 10:01AM
Q Was there a soil sampling SOP in connection with this PCB site?
A There was a sampling analysis plan.
Q Did you draft that sampling analysis plan?
A I would have drafted at least components of it. 10:01AM
Q Did CRA retain that?
A We would have, yes.
Q What was the purpose of the soil sampling conducted on this site? 10:01AM

A To determine if PCBs were present and if present, the nature and extent.

Q Okay. Did the sampling analysis plan undergo any revisions on this site?

A Can you be more specific on that one, please? 10:02AM

Q I think we need to break, but I'll just preserve it and reask it.

VIDEOGRAPHER: We are now off the Record. The time is 10:01 a.m.

(Following a short recess at 10:02 a.m., proceedings continued on the Record at 10:16 a.m.) 10:02AM

VIDEOGRAPHER: We are now back on the Record. The time is 10:16 a.m.

Q Okay. Mr. Churchill, before we took the break, I think I asked you -- we were talking about this PCB site in Indiana. I think I asked you whether the sampling analysis plan for the soil sampling program had undergone any revisions. 10:17AM

A Do you mean during development? 10:17AM

Q During the project.

A I don't recall it; I don't recall that. Long time ago.

Q Right. Generally as a project manager, during the times you've been a project manager, have you 10:17AM

ever implemented a soil sampling SOP?
A Yes.
Q Okay, and what was that?
A I'd like to rephrase that. I implemented a sampling analysis plan, in which soil sampling was a component of that. 10:18AM
Q Okay. So you haven't actually during your time as a project manager implemented a soil sampling SOP?
A I've implemented a soil sampling analysis plan. I don't normally -- I use the term sampling analysis plan. 10:18AM
Q Okay, but you did testify earlier that in your mind there's a distinction between an SOP and a sampling analysis plan? 10:18AM
A Yes.
Q Okay, and just to clarify again, the -- during your experience as a project manager, you haven't implemented what you would consider to be a soil sampling SOP; correct? 10:19AM
A Correct.
Q What was the -- what was the sampling analysis plan that had aspects of soil sampling that you implemented?
A Can you ask the question again? 10:19AM

those?
A There's a site in California, Sacramento.
Q Do you remember the name of the site?
A Yeah. I'm just thinking, though, that I don't necessarily want to list them all. Just I don't want to get myself in a client confidentiality. I mean, ask your question and I'll try my best to answer where there's not any breach of confidentiality. 10:21AM
Q So are you saying that you cannot answer that question; are you asserting a privilege? 10:21AM
A That client, let me think. I can tell you it's called the former Kraft-Nissan facility.
Q In Sacramento?
A Yes. 10:21AM
Q And what type of soil sampling did you do?
A We did some -- we did soil borings.
Q When was that?
A During maybe 2000 -- on more than one occasion, maybe two or three occasions between perhaps 2002 and 2006. 10:22AM
Q Okay. Any other projects, aside from the Indiana and the Sacramento, since you've been a project manager where you've implemented a soil sampling sample analysis plan? 10:22AM

A I want to say that, yes. I'm not positive, you know, how many sites, for example. I can tell you during 2006 we provided quite a bit of oversight of certain activities conducted by CDM. During 2007 it was my understanding that we just did not do as much oversight during 2007. 10:28AM

Q Okay. When was it determined that you would be the CRA employee that would do the expert report?

A I think we really started talking about that really in January of 2008 might have been; might have been December of 2007. 10:29AM

Q Okay. So that was after you had ceased being involved in the field operations; correct?

A Correct.

Q Why were you selected as the lucky one who got to do the report? 10:29AM

A I have quite a bit of experience in collection of environmental samples.

Q Okay. Is that it?

A I'm familiar with procedures commonly accepted, you know, procedures in the industry, EPA guidances. 10:30AM

Q Did each of the field staff for CRA review CDM's SOPs prior to the first field assignment on this project? 10:30AM

Q Okay. When was the last time that you actually collected a soil sample?
A I don't know the date. Several years ago.
Q Could you give me a range?
A I would guess in the early, you know, early 2000s, maybe around 2000. 10:37AM
Q Okay. Would that have been the project at Sacramento?
A No.
Q What project would that have been? 10:37AM
A I can't think offhand the last time I collected a soil sample. It's been several years, like I said.
Q Okay. So you don't recall a specific project?
A No. 10:37AM
Q Mr. Churchill, do you consider yourself to be an expert on environmental sampling?
A Yes.
Q And what's the basis for that belief?
A I've had a lot of experience collecting environmental samples of many different sample medium. I'm very familiar with EPA guidances and industry standards on collection of samples, of environmental samples. 10:38AM
Q Okay. Industry standards you just mentioned, 10:38AM

to say it was a litter application location.
Q Yeah, actually I think that's right.
MR. BLAKEMORE: We'll break.
VIDEOGRAPHER: We are off the Record. The time is 11:20 a.m. 11:21AM
(Following a short recess at 11:21 a.m., proceedings continued on the Record at 11:34 a.m.)
VIDEOGRAPHER: We are back on the Record. The time is 11:34 a.m. 11:34AM
Q Mr. Churchill, have you ever conducted an internal audit of a field crew on the part of CRA?
A What do you mean by audit?
Q I mean, do you not understand the term in your industry; is there not a -- is that not a term of art? 11:35AM
A Well, audit can mean -- audit can be quite broad or fairly narrow. I've watched CRA personnel collect samples and confirmed they are being collected correctly. 11:35AM
Q Okay. For the purposes of?
A Of an investigation.
Q Okay, but you were observing the sampling for what purpose?
A To ensure that our personnel are collecting 11:35AM

samples properly.
Q Okay. Did you generate a report in connection with observing the field personnel?
A I don't recall doing so, no.
Q Okay. Have you ever been subjected to that kind of internal review while you were a part of a field crew? 11:35AM
A Yes.
Q Okay. How many times?
A Several. 11:36AM
Q And did you ever receive any criticism that you were not following procedures or the sample plan?
A I don't recall receiving any criticism, no.
Q Okay. I'm handing you what we've marked as Churchill Exhibit 5. Have you seen this before? 11:36AM
A Yes, I have.
Q Can you identify this for the Record?
A It's an EPA guidance document on preparing standard operating procedures. 11:37AM
Q Okay. If you turn over to Page 1, which is actually the third page --
MR. McDANIEL: Fourth page?
Q Is it fourth, fourth page, and are you there?
A Yes. 11:37AM

Q You think you know?
A Well, I do know.
Q Okay. So you want to revise your report now?
A No. I know all --
Q Now you say you do know. In your report you say you believe that the changes may have been made because. Now you're saying you do not. 12:34PM
A Based on the information I have, I believe it's an applicable opinion.
Q Okay. Do you know or don't you -- 12:34PM
MR. McDANIEL: Object to the form.
Q -- why the changes were made?
MR. McDANIEL: Object to the form. It's been asked and answered. It's argumentative.
Q You can answer. 12:34PM
A Pardon me?
Q You can answer.
A Based on the information I have, I believe the statement is accurate, and so --
Q The statement in the report is accurate? 12:34PM
A Right.
Q Okay. Did you ever conduct any analysis as to whether any of the -- these modifications to Revision 8 or 9 had any impact at all on the soil or litter sampling data? 12:35PM

A We did not conduct any analysis, but you don't need to conduct an analysis to know that, you know, not decontaminating sampling equipment, and when I see a soil probe driven through a cow patty, I don't need to conduct an analysis or review data to say that it would have had an impact. 12:35PM

Q Okay. So, again, the answer is no, you did not conduct any analysis of the data?

A You do not need to conduct an analysis to do that. 12:35PM

Q And you did not?

A That's correct, I did not.

Q Would you agree with me that the word may indicates a degree of speculation?

MR. McDANIEL: Object to the form. 12:36PM

A Yes.

Q Okay. Did you ever make any inquiry to CDM as to any of their reasons why any of the revisions were made to Version 8 or 9 of SOP 5-1?

A We did not inquire to CDM, no. 12:36PM

Q Okay. Did any CDM personnel notify you that he or she was confused about the meaning of the term grid, subarea grid location, sampling area or sampling location?

A First part of your question said did any CDM 12:37PM

Q Are you familiar with the term composited sample?
A Yes.
Q What is a composited sample?
A A composited sample is when you might collect, you know, material from certain medium from different locations, different -- we call them aliquots is the normal term, and you would mix those aliquots to make a composite sample. 01:48PM
Q Have you ever been involved in a field investigation where samples would be composited? 01:48PM
A Yes.
Q Okay. Which one?
A It would be several sites. There were some tank pulls. I mean, we've done a lot of tank pulls in my day where a soil sample has been collected and you might have had a composite sample collected from certain side walls or the bottom, and there would be lots of, you know, individual sites I can think of, and there would have been probably one of the earlier sites I mentioned in Indiana. 01:48PM 01:49PM
Q Okay. Would those have been soil samples that were being composited?
A Yes.
Q With respect to the site in Indiana? 01:49PM

phrase it?
Q If you know that you're going to be compositing samples, does that affect in any way the question of whether there's cross contamination between, for instance, as you've testified before, single sampling depth? 01:59PM
MR. McDANIEL: Object to the form.
A If you're compositing a sample and there is some constituent in one of those aliquot -- individual aliquots, yes, that could become present, could contaminate your composite sample, could become present in your composite sample, would be present in your composite sample. 01:59PM
Q Okay. Did you consider the effect of CDM's sample compositing process before opining on cross contamination impacts? 02:00PM
MR. McDANIEL: Object to the form.
A Yes.
Q Okay. Is that reflected in your report?
A I believe it would have been. 02:00PM
Q Okay.
A I believe so, yes.
Q All right. How did that -- how did the compositing process figure into your analysis of cross contamination? 02:00PM

A Well, it relates back to lack of decontamination of sampling equipment, specifically with respect to soils.

Q Okay. What does that have to do with compositing samples? 02:01PM

A Okay. Well, for example, if you drive a soil probe, you know, at one location and you drive it through manure, okay, and you get manure on the probe, whether it be on the outside and on the inside of the probe, and then you move that probe to 02:01PM the next location without cleaning the probe, without decontaminating the probe, whatever is on that probe could become present in any of the samples that you are trying to collect from the next location, and as you move the probe to the next 02:01PM location, there's the potential for that manure also to become present in the various individual samples collected from that as well.

Q Okay.

A And the fact -- and the fact that you would 02:01PM have something -- some constituent or contaminant present on that probe for one location, every single sample, you know, that you mix with that to make your composite, you know, that whole composite becomes impacted and impaired. 02:02PM

A Yes, I'm aware that he conducted some evaluation.
Q Have you conducted any analysis in response to that finding?
A I crunched a few numbers as I recall to come up with an idea. 02:03PM
Q Is that reflected anywhere in your report?
A Can I review my report?
Q Sure.
A Go ahead. The question being -- 02:04PM
Q What's that?
MR. McDANIEL: Just repeat your question.
A Repeat your question.
Q Well, it was kind of a series of questions, and it culminated in me asking whether that analysis -- you said you crunched a few numbers. 02:05PM
A Right.
Q And I asked you whether that analysis was reflected anywhere in your report.
A No, but I did -- well, you know, the analysis is what -- I believe in some of the calculations that Dr. Olsen presented, he, you know, came up with a number of 2 or 2.5, you know, grams of material that he believed was some kind of maximum amount of cross contamination, and I looked at some numbers 02:05PM 02:06PM

to -- I mean, his calculations completely ignored, you know, some of the larger components that would contribute to cross contamination, you know, in the samples. So, yes, I've discussed that here in my report, and I believe his number is significantly underestimated. 02:06PM

Q Okay, but what I'm asking you is if you did any calculations that reflect in your report that are responsive to the calculations that Dr. Olsen did. 02:06PM

MR. McDANIEL: Object to the form.

A Well, I did some calculations to allow me to, you know, indicate that he's -- you know, he's under estimated the potential for cross contamination.

Q Where would we find those calculations? 02:06PM

A I made some, you know, calculations in some of the materials that I produced as a considered material.

Q You produced those?

A Yes, I did. 02:07PM

Q Were the calculations handwritten or in a spreadsheet or --

A They were some handwritten calculations that gave me some, you know, calculations, numbers, ideas that I put down to help me formulate some thoughts 02:07PM

samples were going to be composited in the laboratory, and as part of that compositing and mixing up, you know, various constituents, you know, would have ended up in the sample that was being composited and analyzed by the laboratory. 02:37PM

Q All right. Let's look at some of these specific ones. Under 2.1, and that's mixing of soil samples; do you see that?

A Okay.

Q Do you see the second bullet point there? 02:38PM

A Yes.

Q What does it say?

A All feathers, rocks, twigs, debris in vegetation will be removed before sieving and mixing. 02:38PM

Q Okay. Specifically with respect to that procedure, did you consider the impact that that would have on the sampling data before opining as to the reliability of the data?

A Yes. 02:38PM

Q Okay. Where is that reflected in your report?

A I don't know that I can tell you off the top of my head, but I know I considered it when, you know, talking about the reliability of the data. You know, just the fact that they said they were 02:38PM

going to remove these things that were, you know, seemingly visible. You know, what about the components that wouldn't have been visible and the smaller components that wouldn't pass through a sieve, okay? I believe all of those would have affected the, you know, integrity of the sample and the analytical results. 02:39PM

Q But, again, you didn't review any of the analytical results, did you?

A No, no. When you know it's in the samples and what the samples come into contact with, you don't need to. 02:39PM

Q Object as non-responsive. Going down to the sixth bullet point beginning with -- it says the sample, do you see that, sample will be hand mixed? 02:39PM

A Right.

Q Will you read that into the Record?

A Sure. The sample will be hand mixed using the plastic scoop or stainless spoon for at least five minutes or until particles are of uniform size. 02:40PM

Q And you don't know one way or the other whether the CDM lab complied with this procedure, do you?

A That's correct.

Q Did you consider the impact of this 02:40PM

A Well, I might not necessarily -- I don't agree that you can -- based on the way the soil samples were collected, I don't believe you could average the individual results and come up with a number that's representative of the top six inches. 03:02PM

Q Okay. Going over to 3-23, do you see that table in the middle of the page?

A Yes.

Q Do you recall reviewing this in preparation of either of your reports? 03:02PM

A No, not really. I glanced at it, and I didn't review it in any detail for sure.

Q Do you understand that this table shows Dr. Olsen's calculation of the maximum amount of cross contamination in all soil intervals from soil remaining on the core probe? 03:03PM

MR. McDANIEL: Object to the form.

A Yeah. I don't know what he's trying to show here. Looks like he's trying to show some RPDs.

Q Okay. 03:03PM

A I don't know.

Q So if you don't know, am I correct that you haven't conducted any analysis to respond to the data in this table?

A I don't need to conduct an analysis to know 03:03PM

that samples were compromised.
Q So that's a no, you haven't?
A Not to conduct an analysis, no.
Q Okay. Do you dispute Dr. Olsen's finding that the potential changes in concentrations caused by maximum amount of possible cross contamination on the core probe do not result in any substantial concentration changes, and the relative percent changes are always much less than that observed due to documented variability in the soil and laboratory analysis? 03:03PM 03:04PM
MR. McDANIEL: Object to the form.
A Yes, I dispute that.
Q On what basis?
A The basis that I think his calculations did not include -- his calculations of cross contamination did not include some of the largest -- some of the greatest reasons why soil samples were contaminated. 03:04PM
Q Like what? 03:04PM
A The way the samples were collected, dragging material. I mean, the sample zero to two, two to four, four to six-inch depth intervals were not truly representative of what they are trying to say they are. 03:04PM

Q How do you know?
A Because I observed soil sample collection, and I observed that material from the four to six-inch layer was pulled into the sample from the two to four-inch layer, and I observed that material from the two to four-inch layer was pulled into the sample from the zero to two-inch layer. 03:05PM
Q But, again, you've done no analysis, statistical analysis of the potential cross contamination, have you? 03:05PM
A Well, you don't need to do an analysis when you can visually identify that you can see soil from one depth interval being included in a sample that they're purporting is being representative of a different depth. 03:05PM
Q But you haven't done a statistical analysis?
A No, I did not make a calculation.
Q All right. In your report you state that commenting on the Olsen report discussion of natural sample variability and analytical variability is beyond the scope of your opinions. Do you recall that? 03:05PM
A Yes.
Q And you've not offered any measurement of natural sample variability of your own which differs 03:06PM

undocumented deficiencies out there.

MR. McDANIEL: Object to the form. It's argumentative.

Q How do we verify those?

A You mean if we say that an activity happened fourteen times here and I'm saying that's a minimum and how do you verify whether or not that activity actually happened twenty times? 03:19PM

Q Yeah.

A You would have to -- I'll give you an example. You can ask me, you know, what my -- how many times that I thought that happened. It would be my estimation of how many times that may have happened. 03:19PM

Q So it would be an estimation?

A Yes, it would be an estimation. 03:20PM

Q Okay. Is there any difference in the importance of cross contamination when you have large concentrations of contaminants present versus where you're investigating for low parts per billion concentration? 03:20PM

A Is there any difference? Is there any difference in what?

Q Is cross contamination or potential cross contamination more of an issue, like, for instance, in your PCB site versus this kind of investigation 03:20PM

where you are doing a composite soil sample looking for nutrients?

MR. McDANIEL: Object to the form.

A I think what you're saying to me -- I mean, this was an environmental investigation that CDM completed, okay? This was not a fertility investigation, okay? So essentially what you are doing is you are falling back to, you know, the standards that apply in the environmental issues. So, yes, cross contamination is important at any level, and that's why all the guidance are set up, you know, minimizing or eliminating even potential for cross contamination. 03:21PM 03:21PM

Q Okay.

A So at low levels, yes. At high levels, yes. 03:21PM

Q Okay. At the bottom of Page 19 of your report, you quote from Darren Brown's deposition testimony in support of your contention that Mr. Brown admitted that there was cross contamination. Do you recall that? 03:22PM

A Yes.

Q Okay, and the specific quote from Mr. Brown was that there could be carryover from one interval to the next but that did not have an impact on how we were using the data. So in the broad sense, 03:22PM

that?
A Yes.
Q Is that consistent with what CRA observed in the field?
A I don't recall seeing what they did with it after use. 03:27PM
Q Okay. Just as a general matter, is there any need to decontaminate a one-time use sampling device?
A It's good practice, yes. The answer is yes, there is a need to decontaminate so you know what you're starting with. You know you have a clean sampling equipment to start with that has not been impacted by, you know, some other sources that you might not even be aware of. 03:27PM 03:28PM
Q Oh. So you're saying decontaminate before you take the sample?
A For a single use?
Q Yeah.
A Sure. You should make sure that you're using clean equipment, and one way of making sure you're using clean equipment would be to decontaminate it prior to use. 03:28PM
Q Okay. Are you aware of any EPA or other state guidance document that says that you should 03:28PM

decontaminate one-time use sampling equipment?
A It's -- I would say it's pretty common knowledge in the industry to use clean equipment prior to initiating a sampling program. You know, you might not find an EPA guidance that specifically states that you must decon equipment prior to single use. 03:29PM
Q Okay.
A Just because it's not -- it may not be written down doesn't mean it's not the norm and not appropriate. 03:29PM
Q Is it possible to generate a decontamination blank if the sampling equipment is only used once?
A I don't think you would call it a decontamination blank. 03:29PM
Q Okay. So no?
A You can't generate a decontamination blank if you haven't done any decontamination.
Q Right. Thank you. So with that in mind, would there be any need for CDM to have an SOP provision with respect to its litter sampling program requiring the collection and submission of decontamination blanks? 03:29PM
A Yes. It's just -- really just, you know, good practice to -- do you mind repeating that? Sorry. 03:30PM

Q Yeah. With the understanding that we're talking about a one-time use --
A Right.
Q -- equipment for litter, would there be any reason for CDM to have an SOP provision requiring the collection and submission of a decontamination blank? 03:30PM
A Well, if they were not going to decontaminate equipment prior to use, they should have collected a -- you know, poured water off the sample and collected -- call it what you want -- a field blank. Certainly -- 03:30PM
Q I'm not --
A You know, if they were not going to decontaminate the equipment prior to use, okay, it would have been appropriate to collect a sample and call it whatever you want, a field blank, some kind of blank off that equipment to determine whether there was anything on that equipment to start with. 03:31PM
Q Okay. 03:31PM
A I mean, if they were to get, you know, a shovel from the local co-op -- I don't know if they got it -- who knows if that shovel was sitting next to the fertilizer bags that are for public use. Who knows? You know, we've all seen, you know, bags of 03:31PM

fertilizer leaking at the co-op with rips in them and things like that. So that's why it's appropriate to make sure that you have -- that you know what you are starting your sampling with.

Q Okay. What about after the sample is taken; then you need to have -- do a decontamination blank for one-time use equipment? 03:31PM

A After a sample?

Q Yeah.

A After an environmental sample is collected? 03:31PM

Q Yes.

A Is there ever any -- you are confusing terms. You wouldn't take a decontamination blank after collecting a sample of the medium itself.

Q Right. I mean, if it's a one-time use, you're not decontaminating it after you use it; you're not going to collect a decontamination blank? 03:32PM

A It was appropriate to -- if they were not going to decontaminate their equipment, for sure it's appropriate to collect, you know, a blank. Call it a field blank, call it a presample collection blank, sampling equipment characterization blank. 03:32PM

Q Okay. Thank you. You are -- you're also critical of CDM for leaving the manufacturer's label 03:32PM

A No, I don't.
Q Do you know whether EPA actually uses this handbook for any purpose at this time?
A I don't know that they -- I'm not aware that they don't use them. 03:56PM
Q So you don't know one way or the other?
A Correct.
MR. BLAKEMORE: I guess we'll take our break.
VIDEOGRAPHER: We are now off the Record. 03:57PM
The time is 3:56 p.m.
(Following a short recess at 3:57 p.m., proceedings continued on the Record at 4:07 p.m.)
VIDEOGRAPHER: We are back on the Record.
The time is 4:07 p.m. 04:08PM
Q Mr. Churchill, do you need to know what the ultimate use of the data will be before drafting a sampling analysis plan?
A I think it's a -- I think in the strict sense of the word, no, if you're drafting, you know, 04:08PM certain components of that plan that would specify the procedure, but I think it always helps.
Q Okay. Would it follow that it would help to know the ultimate use of the data if you're critiquing someone's field investigation? 04:09PM

MR. McDANIEL: Object to the form.
A No. I mean, no.
Q Just no?
A Did you ask would it help?
Q Yeah. Would it be helpful? 04:09PM
A I suppose it would be helpful, but I don't believe it's necessary.
Q Why isn't it necessary?
A Because, you know, being familiar with how samples of various media should be collected, you 04:09PM know, it's pretty easy for me to critique and make observations of when, you know, when an SOP or a sampling analysis plan was not followed.
Q Okay. What about taking it a step further and opining as to whether a certain alleged deficiency 04:10PM impacts the data quality?
A You know, I think the information, you know, would be helpful but it's not critical. I mean, you know, it's my understanding that in the case of soil samples, regardless of how the data were actually, 04:10PM you know -- what models or things that are going to be put into, I mean, I know if CDM were trying to collect a sample, discrete samples from depth intervals, whether -- you know, I know that it's important to make sure that what you are actually 04:11PM

getting in the sample container, you know, is truly representative of, in the case of CDM, zero to two inches, two inches to four inches, four inches to six inches. I mean, I know that if they are planning on doing -- you know, getting data from various soil layers, I mean, I know the importance of making sure that the soil that gets into the sample jar is truly representative of those individual layers. 04:11PM

Q Okay. As a point of clarification back to the splits, you testified earlier, I think, that the CRA took the splits and then they were submitted to some labs; is that correct? 04:11PM

A No. You're going to have to be specific on which splits, what media. 04:12PM

Q Okay. Let's start with spring samples.

A Okay, and your question regarding split -- spring samples --

Q Yeah. What happened with them once you took them? 04:12PM

A Well, you know, we didn't take the splits. We were given the splits --

Q Okay.

A -- by CDM just for clarification there. The samples were labeled, packaged up and sent off to an 04:12PM

would have been analyzed for those parameters.
Q Okay, but you don't know which ones specifically with respect to these twelve sampling areas that we're talking about were analyzed for bacteria, do you? 04:25PM
A That's correct.
Q Okay. When CDM bagged the soil material, what interval was collected first?
A The four-inch to six-inch below grade depth level. 04:26PM
Q What interval was collected second?
A Two-inch to four-inch depth interval.
Q And third would be zero to two?
A Correct.
Q Okay. In your opinion is it physically possible for a two to four-inch interval to be affected by cow manure from the tip of the probe? 04:26PM
A Yes.
Q How do you know?
A Well, because if you've advanced a soil sample probe through cow manure at a location and then you go to the next location without decontaminating that piece of equipment, that probe, and you advance it down through the soil, you have the potential of, you know, impacting, you know, all the soil through 04:26PM 04:27PM

that profile with cow manure.
Q Is it physically possible for a four to six-inch interval to be affected by cow manure from the tip of the probe?
A Yes. 04:27PM
Q For the same reasons?
A For the same reasons, yes.
Q Is it not true that in your analysis you concluded that observation of the single incident, such as the advancement of a probe through cow 04:27PM
manure, compromised the entire field?
A It's my position -- do you mind rephrasing that?
Q Isn't it true that in your analysis you concluded that observation of a single incident, 04:27PM
such as advancement of a probe through cow manure, compromised the entire field?
MR. McDANIEL: That's the same question he asked you to rephrase.
A Yes, that's fine. I will answer.
MR. McDANIEL: I object to the form. Go ahead.
A Yes, that's my position because the samples were being composited.
Q Okay. How many discrete soil samples did CRA 04:28PM

Q If you haven't conducted any analysis of the FAC-08 data, how can you be sure that there was in fact soil from the poultry house floor in that sample?

A One of our field people observed and documented that it was present in the sample. 04:44PM

Q So just based on the observation?

A Yes.

Q Okay. Aside from FAC-06, which is dropped from the evaluation, and FAC-08, do you assert that there are any other litter samples which were compromised by the presence of soil on the poultry house floor? 04:44PM

A I can't testify that there were more. I don't have any direct evidence that there were. I can tell you that the numbers in this table represent the minimum. I can't tell you -- I cannot tell you that there were more than that. 04:45PM

Q You just don't know one way or the other?

A I can tell you that there were at least two samples. I can't say any more than that. 04:45PM

Q Okay. You claim in your report that litter composite samples were not properly mixed. Do you recall that?

A Yes. 04:45PM

Q What was it about the mixing of the litter samples that was not proper in your opinion?
A Well, a poor job was done of mixing the litter samples in the field, of which CDM collected a sample for their own purposes and provided CRA also a sample of that improperly mixed material. 04:46PM
Q Okay, but what do you mean by improperly mixed; what was wrong with it?
A Okay. In properly compositing a sample, it's important to take, you know, the time and effort and use the right tools to, you know, mix a sample and try to get a sample as homogeneous as possible. CDM collected their poultry litter samples, you know, in the barn and they went -- they basically collected roughly eighteen aliquots per location. They walked 04:46PM
in a zigzag pattern, and as they went along, they deposited sample material, you know, poultry litter into a sample bag that was placed inside of a bucket. Okay? So as they went along, they would collect an aliquot, dump it in the bucket, collect 04:47PM
another aliquot, dump it in the bucket. Okay? They did this roughly eighteen times, and then prior to collecting the sampling activities in the poultry house, when they emerged from the barn, they would take a shovel and, you know, it was a regular, you 04:47PM

know, shovel and attempt, you know, attempt to mix that, you know, all those eighteen individual aliquots properly. They attempted to mix it to make a composite sample, okay, but, you know, just due to the nature of -- the nature and the size of the 04:47PM shovel, they were not able to properly mix material that would have been in the bottom of the -- in the bottom of the bucket. Okay? They were not able to pull it from the bottom and up to the top and mix it. So effectively, you know, in part due to the 04:48PM size of the shovel but also the time that was expended, you know, if you really wanted to do a good job of compositing or homogenizing a sample, you would have taken a different -- more time and probably different sampling or a different 04:48PM instrument to thoroughly mix the sample.

So effectively what happened was they only mixed, you know, perhaps the top, you know, largely the top 50 percent or maybe a little bit more of the bucket and turned that over, turned it over a bit, 04:48PM and then so, you know, effectively they -- I'll take the word effectively away. They did homogenize some of the material in the bucket. It was just largely the uppermost material in the bucket. Okay? From that partially homogenized material, okay, which did 04:49PM

not largely include material from the bottom, CDM collected, you know, an individual sample for their own purposes, and I believe that was for bacterial analysis, and it's also -- at that time they extracted material and gave that to CRA as a split sample. 04:49PM

Q I take it by the detail of your answer that you personally observed this mixing process?

A Yes.

Q On how many occasions? 04:49PM

A Essentially every time.

Q Okay.

A For each of the poultry litter samples.

Q Okay. Have you personally ever mixed or composited litter samples? 04:49PM

A No, not personally litter samples, but I have collected composite samples, and the fact that I haven't collected or I haven't composited a litter sample doesn't matter.

Q Back to FAC-08, was the -- do you know whether the collection of that specific litter sample was documented in any way? 04:50PM

A Documented by who?

Q I'm sorry. By camera or video.

A Because we were videotaping, you know, 04:50PM

A I believe in reviewing the Olsen report, that that's correct, yes.

MR. BLAKEMORE: That's all I have.

MR. McDANIEL: I've got a few questions.

CROSS EXAMINATION

BY MR. McDANIEL:

Q Mr. Churchill, this morning Mr. Blakemore asked you questions about your personal experience in collecting some of the sample media that were the same media that CRA observed CDM sampling. Poultry litter was one of them, for example. 05:29PM

A Yes.

Q Is it necessary that you have personally collected poultry litter samples in order to be qualified to render the opinions you've offered in this case? 05:30PM

A No.

Q Why not?

A Well, the collection of environmental samples, I mean, the same -- many of the same principles apply right across the board, whether it be, you know, the principles associated with, you know, properly compositing, using precleaned or decontaminated sampling equipment. It doesn't matter. I mean, many of the principles apply 05:30PM

regardless of the medium you are sampling.
Q In your career have you been trained in the sampling of a range of different substances?
A Yes, yes.
Q Do you have experience in sampling a range of substances? 05:30PM
A Yes, quite a range of substances. The ones that immediately come to mind would be soil, groundwater, surface water, sludge, air samples, many different medium. 05:31PM
Q On the issue of industry standards for the environmental industry, are there standards that you're aware of that exist in the industry from sources other than printed guidelines from the EPA or some other state agency? 05:31PM
A I mean, there are commonly accepted standards that might not necessarily be written down.
Q Is there a written standard somewhere that says do not put your ungloved finger in a sample bag? 05:31PM
A No.
MR. BLAKEMORE: Object to the form.
A No, no. The standards that are applicable don't lay everything that you absolutely shouldn't do that are, you know, just common sense for people, 05:31PM

you know, in the environmental business know not to conduct certain activities.

Q Were the standards of the type you just described part of what you were referring to in your report when you refer to industry standards? 05:32PM

A Yes.

Q Now, in your report you do not specifically discuss sampling in Lake Tenkiller, Stockton Lake, Broken Bow Lake, public water supplies, high flow sampling, sediment sampling, river and stream 05:32PM sampling, fish community sampling, periphyton sampling, benthic macro invertebrate sampling, stream habitat sampling, combined river and biological sampling, edge of field sampling and geoprobe sampling. 05:32PM

A That's correct.

Q Do the opinions you expressed in your report and you've testified to about an hour or so ago regarding the necessity of a quality assurance project plan, do those opinions apply to this list 05:33PM of sampling that I just recited?

A Yes, of course.

Q Do your opinions about the degree of training and documentation of training of CDM personnel apply to these different types of sampling that I listed a 05:33PM